AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended): A method of determining a spectral route in an optical telecommunications network between a starting node and a destination node of the network, the method comprising:

determining at least one candidate spatial route to connect the starting node to the destination node via network nodes disposed intermediate between the starting node and the destination node, the candidate spatial route consisting of a sequence of spatial route segments, each spatial route segment connecting two nodes of the network directly and being adapted to support a plurality of wavelengths, each wavelength constituting a spectral route segment;

sending a route set-up request message from the starting node to the destination node via the candidate spatial route;

collecting values of parameters characterizing the spectral route segments, which values of the parameters include values of optical transparency parameters, in the message as the message traverses the candidate spatial route;

receiving the message with the collected parameters values in the destination node; and

using an optimization method to process the collected parameters values in the destination node upon receipt of the message to select the spectral route and the spatial route that supports the selected spectral route by selecting the wavelength to be used, or the wavelengths to be used successively, to spectrally connect the starting node to the destination node.

2-3. (Cancelled)

4. (previously presented): The method according to claim 1, wherein the parameters characterizing all of the spectral route segments along each candidate spatial route take account of transparency constraints.

5. (previously presented): The method according to claim 1, wherein the parameters characterizing all of the spectral route segments along each candidate spatial route take account of connection capacity constraints.

6. (previously presented): The method according to claim 1, wherein the parameters characterizing all of the spectral route segments along each candidate spatial route take account of quality of service constraints.

7. (previously presented): An optical network node for implementing the method according to claim 1, comprising management means for:

receiving a route set-up request message on a predetermined spatial route passing through the node;

adding to the content of the message parameter values concerning spectral routes supported by the spatial route segment immediately one of upstream and downstream of the node on the spatial route, together with parameter values concerning interfaces of the node; and

forwarding the message modified in this way to another node situated on the spatial route segment immediately downstream of the node and designated by routing information contained in the message.

8. (previously presented): An optical network node for implementing the method according to claim 1, the node comprising management means for:

receiving at least one message containing parameters values collected along a candidate spatial route connecting the starting node to the node; and

using an optimization method to process the collected parameters values to select a spectral route by selecting the wavelength to be used, or the wavelengths to be used successively, and connect the starting node to the optical network node.

9. (previously presented): The method according to claim 1, further comprising:

determining sets of wavelengths available along the spatial route segments, from the starting node to the destination node, wherein the values of the collected parameters include identifications of the determined sets of available wavelengths.

10. (previously presented): The method according to claim 9, further comprising:

selecting the spectral route as a transparent route, which uses the same wavelength from the starting node to the destination node and lacks optical to electrical to optical conversion.

11. (previously presented): The method according to claim 9, further comprising:

selecting the spectral route as a combination of transparent sub-paths which spectrally connect one node to another node, wherein each transparent sub-path uses the same wavelength from the one node to the another node and lacks optical to electrical to optical conversion.

12. (previously presented): The optical network node according to claim 7, wherein the method further comprises:

determining sets of wavelengths available for a connection from the optical network node to a downstream node along the spatial route segments, wherein the values of the collected parameters include identifications of the determined sets of available wavelengths.

13. (previously presented): The optical network node according to claim 8, wherein the method further comprises:

determining sets of wavelengths available along the spatial route segments, from the starting node to the destination node, wherein the values of the collected parameters include identifications of the determined sets of available wavelengths.

14. (previously presented): The optical network node according to claim 13, wherein the method further comprises:

selecting the spectral route as a transparent route which uses the same wavelength from the starting node to the destination node and lacks optical to electrical to optical conversion.

15. (previously presented): The optical network node according to claim 13, wherein the method further comprises:

selecting the spectral route as a combination of transparent sub-paths which spectrally connect one node to another node, wherein each transparent sub-path uses the same wavelength from the one node to the another node and lacks optical to electrical to optical conversion.

16. (new): The method according to claim 1, wherein using the optimization method comprises:

processing the values of the optical transparency parameters, collected in the received message;

minimizing a cost function based on the processed values of the optical transparency parameterss; and

determining a shortest spectral route including an optically transparent path from the source node to the destination node.

17. (new): The method according to claim 16, wherein minimizing the cost function comprises:

using a Dijkstra's algorithm.

18. (new): The method according to claim 16, wherein the optically transparent path does not lie through opto-electronic and electronic-optical interfaces.

19. (new): The method according to claim 1, wherein using the optimization method comprises:

processing the values of the optical transparency parameters, collected in the received message;

determining a presence of an optically transparent path from the source node to the destination node; and

one of:

informing the source node of the determined optically transparent path, and

determining an optimal path between the source node and the destination node, which optimal path includes the least possible points of non-transparency and informing the source node of the determined optimal path.